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FOR IMMEDIATE RELEASE

RASIRC Announces RainMaker Humidifiers for High Temperature Humidification of Sanitary Clean Dry Air and Nitrogen *Nonporous membrane provides barrier between water and process gas*

San Diego, Calif. – October 13, 2008 –[RASIRC](#)[®], the steam purification company, today announced the release of a new sanitary humidifier, specially designed for pharmaceutical, medical, and biotechnology processes. The RainMaker™ Humidifier controls the transfer and purity of water vapor or steam directly into a gas stream. Many processes are developed with water vapor as a key component of the process. However, when moving from benchtop to production, compressed air is often replaced with synthetic air or nitrogen for good manufacturing process reasons. These process gases are bone dry. To add water back reliably and repeatably is a technical challenge. To solve this problem, RASIRC has created the RainMaker Humidifier to humidify GMP process gases.

Technologies commonly used for humidity control typically use a porous hollow fiber and cannot go above 50°C. This temperature is too low to prevent bacterial growth, a significant concern in biotechnology applications. In addition, water vapor loading at these low temperatures is limited to single digits. If instead, high temperature water or steam is used then high concentrations of water vapor can be loaded into the process gas and then diluted downstream. This reduces the size, cost and complexity of the humidification system.

The RainMaker Humidifier uses a non-porous membrane to provide a barrier between the liquid source and the carrier gas to be humidified. The water vapor rapidly permeates across the membrane, while the carrier gas is excluded. This flow stops once the carrier gas has been fully saturated. Because the membrane has a known transfer rate based on pressure and temperature, RainMaker can be used as a flow control and gas delivery device.

The RainMaker Humidifier has a 316L SS housing with sanitary fittings. All internal components are made from fluoropolymers to handle corrosion, high temperatures, and maintain purity needed for demanding biopharm process and validation requirements.

“The contactor technology typically used for humidification uses hollow fiber technology. This does not provide an aseptic barrier between the water and the gas. Contactors also require water pressure be above the gas pressure which can be a real problem. RainMaker technology has a much greater operating range of pressure and temperature,” said Jeffrey Spiegelman, president of RASIRC. “The RainMaker is constructed to handle temperatures exceeding 80°C while most contactors breakdown above 50°C. The nonporous membrane prevents direct contact between the water and the process gases, so an extra level of protection is provided between the water source and the product.”

The RainMaker Humidifier is available in different sizes based on flow rate, pressure, dew point, desired gas, and water connections. Both humidifiers and closed loop custom systems are available. Contact RASIRC for specific configuration and pricing details at 858-259-1220 or info@rasirc.com.

About RASIRC

[RASIRC](#) products purify and deliver ultra pure liquids and gases. RASIRC technology is the first to generate ultra high purity (UHP) steam from de-ionized water. It reduces cost, increases yield, and improves safety. RASIRC dryers, humidifiers, and steam generators are of critical importance for many applications in the semiconductor, pharmaceutical, medical, biological, fuel cell, and power industries. Custom systems are available upon request. Call 858-259-1220, e-mail info@rasirc.com, or visit www.rasirc.com.

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